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phospho-MARK2 (Ser595) Rabbit pAb

Catalog # AP99205

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	Q7KZI7
Other Accession	Q7KZI7
Reactivity	Rat, Human, Mouse
Predicted	Pig, Dog, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	87911
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from human MARK2 around the phosphorylation site of Ser595
Epitope Specificity	SR(p-S)TF
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the protein kinase superfamily. CAMK Ser/Thr protein kinase family. SNF1 subfamily. Contains 1 KA1 (kinase-associated) domain. Contains 1 protein kinase domain. Contains 1 UBA domain.
SUBUNIT	Homodimer. Interacts with PAK7/PAK5; leading to inhibit the protein kinase activity. Interacts (when phosphorylated at Thr-596) with YWHAZ. In case of infection, interacts with H.pylori CagA, leading to inhibit kinase activity and junctional and polarity defects.
Post-translational modifications	Autophosphorylated. Phosphorylated at Thr-208 by STK11/LKB1 in complex with STE20-related adapter-alpha (STRADA) pseudo kinase and CAB39. Phosphorylation at Thr-208 by TAOK1 activates the kinase activity, leading to phosphorylation and detachment of MAPT/TAU from microtubules. Phosphorylation at Ser-212 by GSK3-beta (GSK3B) inhibits the kinase activity. Phosphorylation by CaMK1 promotes activity and is required to promote neurite outgrowth. Phosphorylation at Thr-596 by PRKCZ/aPKC in polarized epithelial cells inhibits the kinase activity and promotes binding to 14-3-3 protein YWHAZ, leading to relocation from cell membrane to cytoplasm.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene encodes a member of the Par-1 family of serine/threonine protein kinases. The protein is an important regulator of cell polarity in epithelial and neuronal cells, and also controls the stability of microtubules through phosphorylation and inactivation of several microtubule-associating proteins. The protein localizes to cell membranes. Multiple transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Jul 2009].

Additional Information

Gene ID	2011
Other Names	EMK-1; EMK1; MRD76; PAR-1; Par-1b; Par1b; Emk; MARK2_HUMAN; MARK2; ELKL motif kinase 1 (EMK-1); MAP/microtubule affinity-regulating kinase 2; PAR1 homolog; PAR1 homolog b (Par-1b | Par1b); 2.7.11.1; 2.7.11.26; MARK2_MOUSE; PAR1 homolog b (Par-1b | mPar-1b); MARK2_RAT; microtubule affinity regulating kinase 2; ELKL motif kinase; ELKL motif kinase 1; serine/threonine kinase; protein-serine/threonine kinase; Ser/Thr protein kinase PAR-1B; MARK2 (phospho-S595); p-MARK2; phospho-MARK2; MARK2 (phospho-Ser595)
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	MARK2 {ECO:0000312|EMBL:AAH08771.2}
Synonyms	EMK1
Function	Serine/threonine-protein kinase (PubMed: 23666762). Involved in cell polarity and microtubule dynamics regulation. Phosphorylates CRTC2/TORC2, DCX, HDAC7, KIF13B, MAP2, MAP4 and RAB11FIP2. Phosphorylates the microtubule-associated protein MAPT/TAU (PubMed:23666762). Plays a key role in cell polarity by phosphorylating the microtubule-associated proteins MAP2, MAP4 and MAPT/TAU at KXGS motifs, causing detachment from microtubules, and their disassembly. Regulates epithelial cell polarity by phosphorylating RAB11FIP2. Involved in the regulation of neuronal migration through its dual activities in regulating cellular polarity and microtubule dynamics, possibly by phosphorylating and regulating DCX. Regulates axogenesis by phosphorylating KIF13B, promoting interaction between KIF13B and 14-3-3 and inhibiting microtubule-dependent accumulation of KIF13B. Also required for neurite outgrowth and establishment of neuronal polarity. Regulates localization and activity of some histone deacetylases by mediating phosphorylation of HDAC7, promoting subsequent interaction between HDAC7 and 14-3-3 and export from the nucleus. Also acts as a positive regulator of the Wnt signaling pathway, probably by mediating phosphorylation of disheveled proteins (DVL1, DVL2 and/or DVL3). Modulates the developmental decision to build a columnar versus a hepatic epithelial cell apparently by promoting a switch from a direct to a transcytotic mode of apical protein delivery. Essential for the asymmetric development of membrane domains of polarized epithelial cells. Phosphorylates UBAC2 at 'Ser-223' during ER stress or starvation-induced autophagy, promoting UBAC2 dimerization and interaction with GABARAP to mediate ER-phagy (PubMed:39284914).
Cellular Location	Cell membrane; Peripheral membrane protein. Cytoplasm. Lateral cell membrane. Cytoplasm, cytoskeleton. Cell projection, dendrite. Cytoplasm. Note=Phosphorylation at Thr-596 by PRKCZ/aPKC and subsequent interaction with 14-3-3 protein YWHAZ promotes relocation from the cell membrane to the cytoplasm
Tissue Location	High levels of expression in heart, brain, skeletal muscle and pancreas, lower levels observed in lung, liver and kidney

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